INTEGRATED MICROPUMP ANALYSIS CHIP AND METHOD OF MAKING THE SAME

Abstract of the Disclosure

An integrated micropump or a plurality of integrated micropumps are communicated to a plurality of analysis chambers. A plurality of integrated analysis chambers include integrated analysis devices to test a fluid for an analyte. The micropumps continuously or periodically pump the fluid into the analysis chambers and flush the analysis chambers after analysis of the analyte. In one embodiment, the analysis device comprises an integrated LED and an integrated optical detector. The LED and detector are tuned to an optical absorption line of the analyte. The micropumps are composed of nitrides of B, Al, Ga, In, Tl or combinations thereof and fabricated using photoelectrochemical techniques. The analysis chambers, and micropumps including the analysis devices are simultaneously fabricated during which fabrication of the micropumps and the analysis devices are masked from the photoelectrochemical techniques.